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PATIENT-REPORTED PROLAPSE OUTCOMES RELATED TO CHILDBIRTH: ASSOCIATION BETWEEN PROLAPSE SYMPTOMS, MODE OF DELIVERY HISTORY AND OBJECTIVE PROLAPSE STAGING USING POP-Q SYSTEM.

Hypothesis / aims of study

1. To investigate the relationship between prolapse symptoms 12 years after childbirth measured using a patient-reported measure (Pelvic Organ Prolapse Symptom Score, POP-SS) and lifetime delivery mode history
2. To investigate the relationship between the POP-SS and objective measurement of pelvic organ prolapse using the POP-Q system.

Study design, materials and methods

A longitudinal study was carried out to follow up a population of 7883 women recruited originally 3 months after childbirth (index delivery) in three maternity units in three countries. After excluding women who had requested no further contact (117) or who had died (41), 7725 questionnaires were sent out, and 3773 responded at 12 years (49%), of whom 762 (20%) consented to have a vaginal examination to evaluate prolapse stage and type using the Pelvic Organ Prolapse-Quantification system (POP-Q). Women completed postal questionnaires providing details of urinary incontinence, bowel dysfunction and prolapse symptoms. The latter were assessed using the Pelvic Organ Prolapse Symptom Score (POP-SS) (1). Details of delivery mode history were provided by the women for all their deliveries.

Multiple regression was used to examine the association between the POP-SS and delivery mode history, adjusted for age at first birth, parity and current BMI. Multiple regression was also used to examine the association between the POP-SS and whether the woman had measurable prolapse (POP-Q Stage 2b, at hymen or greater) or not (Stage 0, 1 or 2a) and delivery mode history, adjusted for age at first birth, parity and current BMI. Delivery mode history was categorised into exclusive SVD(s), exclusive CS(s), mixed SVD and CS deliveries, any forceps delivery, and any vacuum extraction (but no forceps). BMI at 12 years was categorised with an extra category for missing data (not known).

Results

A full dataset was available for analysis in 3762 women who responded to the 12-year questionnaire. Their mean age was 42, and 11% had only had one child. Using 'SVD only' as the reference category, only women who had at least one forceps delivery had a statistically significantly higher (worse) symptom score (POP-SS, Table 1). These results are adjusted for confounding factors: older age, higher parity and higher BMI also significantly contributed to more prolapse symptoms (data not shown).

Amongst the 20% of women who had a POP-Q examination, 428/762 (56%) had a Stage 2 prolapse or greater (Table 2), and in 24% of all women the leading edge of the prolapse was at or below the hymen (POP-Q Stage 2b or more). No woman had a prolapse stage 4. Twenty women had already had prolapse surgery but their POP-Q findings after operation were similar to those of women who had not had surgery (25% Stage 2b or greater). There was no association between any prolapse stage and the prolapse symptom score (POP-SS, Table 2), nor when 'prolapse' was defined as at or beyond the hymen.

Table 1. Prolapse symptoms and MOD history

Variable	Number 3762	POP-SS Mean (SD)		OR	[95% CI]	P value
Delivery mode history						
Only SVD	1856	2.65	(3.5)			
Only CS	404	2.10	(2.8)	0.83	0.66, 1.04	0.111
SVD and CS	294	2.91	(3.5)	1.11	0.87, 1.43	0.406
Any forceps	960	2.91	(3.6)	1.24	1.06, 1.44	0.007
Any vacuum*	248	2.39	(3.2)	1.07	0.81, 1.40	0.645

* No forceps

Table 2. Prolapse symptoms and POP-Q

Variable	Number 762	POP-SS mean (SD)		OR	[95% CI]	P value
POP-Q stage of leading edge: n (%)						
Stage 0	46 (6%)	3.5	(4.3)	Reference		
Stage 1	288 (38%)	3.6	(3.9)	1.21	0.63, 2.35	0.563
Stage 2a	244 (32%)	3.7	(3.9)	1.25	0.64, 2.44	0.513
Stage 2b	169 (22%)	3.6	(3.7)	1.09	0.54, 2.20	0.805
Stage 3/4	15 (2%)	3.7	(4)	2.23	0.58, 8.63	0.244

Stage 0 - 2a	578 (76%)	3.65	(3.92)	Reference		
Stage 2b - 4	184 (24%)	3.61	(3.74)	0.94	0.67, 1.33	0.729

Interpretation of results

Although the mean prolapse score was less in women who had only delivered by CS, or who had had at least one vacuum delivery, this was not statistically significant compared to women who had only had spontaneous vaginal deliveries. However, women who had had at least one forceps delivery had significantly higher (worse) prolapse symptom scores (Table 1). While delivering exclusively by CS was associated with significantly less risk of objectively measured prolapse using the POP-Q system (29% vs 6%, data presented previously) (2), we did not find any equivalent protective effect in terms of women's symptoms.

This may be partly explained by the lack of association between prolapse objectively measured by POP-Q and prolapse symptoms measured using the POP-SS. There was no evidence of any relationship between successive prolapse stages and mean POP-SS values (Table 2), nor when prolapse was defined as at the hymen or beyond (Table 2). The POP-SS is derived from seven separate questions related to prolapse symptoms, including items related to the obstructive effects of prolapse on bowel and bladder function. However, there was also no association between POP-Q and the classic symptoms of prolapse, a 'feeling of something coming down from or in your vagina' (OR 1.26, 95% CI 0.81 to 1.95) or 'an uncomfortable feeling or pain in your vagina which is worse when standing' (OR 1.36, 95% CI 0.84 to 2.18). Other researchers have also drawn attention to the lack of correlation between measurable prolapse and its symptoms in women (3).

Concluding message

Childbirth clearly has an influence on subsequent pelvic floor dysfunction. When treating women with prolapse, it is important to assess clinical need in terms of the outcomes that matter to women. The association between women's prolapse symptoms and mode of delivery (more symptoms after at least one forceps delivery) suggests that forceps delivery has an adverse effect on pelvic floor function while delivering exclusively by CS is not protective. However, the lack of association between subjectively reported prolapse symptoms and objectively measured prolapse suggests that this is not necessarily mediated through the mechanical changes of pelvic organ descent.

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Specify source of funding or grant	**WellBeing of Women, Royal College of Obstetricians and Gynaecologists, London UK. University of Otago, School of Medicine scholarship and Faculty research award.**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Multicentre Research Ethics Committee for Scotland; Health Research Council of New Zealand Ethics Committee**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**